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(54) Dispenser for dispensing a rolled product in sheet form

(57) For hygienic reasons and to avoid waste, a dispenser is provided for the sheet-wise dispensing of a rolled product, such as paper hand towels and toilet seat covers, in which a roll (2) is rotatably mounted in a housing (1) and in which there is a dispenser slot (5) through which the product is guided outwards, and in which the rotary movement of the roll (2) is locked by a releasable locking device (10) after dispensing a single sheet and is subsequently released.

It is particularly advantageous to design the locking device (10) to be releasable via a coin-operated mechanism (6-11).

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Claims

1. Dispenser for sheet-wise dispensing of a rolled product, such as paper hand towels and toilet seat covers, with a housing in which the roll is rotatably mounted, and a dispenser slot through which the product is guided outwards, characterized in that the rotational movement of the roll (2) is locked by a releasable locking device (10) after dispensing a single sheet and is subsequently released.

2. Dispenser according to claim 1, characterized in that the locking device (10) is releasable by means of a coin-operated mechanism (6-11).

3. Dispenser according to claim 1 or 2, characterized in that the locking device (10) is released by means of a timing element.

4. Dispenser according to one of claims 1 through 3, characterized in that the locking device (10) is released by means of a photoelectric beam and/or a step-on sensor.

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Dispenser for dispensing a rolled product in sheet form

The invention refers to a dispenser for sheet-wise dispensing of a rolled product, such as paper hand towels and toilet seat covers with a housing in which the roll is rotatably mounted and a dispensing slot through which the product is guided outwards.

In the prior art, it is generally known to produce hand towels and toilet seat covers from paper to be disposed of after a single use. This measure guarantees that transfer of germs, bacteria, or the like to subsequent users is no longer possible. For this reason, such devices are found primarily in locations with heavy public traffic, such as public toilets, service areas, hospitals, schools, or the like. The delivery occurs using a dispenser in which either the single items are inserted in stacks and are successively removable, or the products are wound together in the form of rolls and separated from each other sheet-wise by perforations, and the roll can be guided outwards through a dispensing slot and each single sheet separated, for example, by a tear-off edge. The surrounding housing guarantees that the rolled product located therein is not soiled and cannot be contaminated with germs.

It must be considered a disadvantage that, in particular with careless or intentional behavior, a much larger than necessary number of hand towels or toilet seat covers can be pulled from the housing and removed, resulting in a significant and ultimately unnecessary waste of hand towels and toilet seat covers.

Starting from this situation, the invention has the object of providing a dispensing device which ensures that only a single item of the removable product, i.e., the hand towel or toilet seat cover, can be dispensed.

This object is accomplished in that the rotational movement of the roll is locked by means of a releasable locking device after dispensing a single sheet and is subsequently released. This measure guarantees that only a single sheet can be pulled from the housing such that, advantageously, waste and malicious emptying can no longer occur. It is completely adequate for the user if one item of the paper towels or toilet seat covers is made available to him. It must also be considered advantageous that the locking device to be installed according to the invention acts directly on the roll arranged inside the housing such that by doing away with significant control elements extending beyond the housing, such as levers or the like, these elements can no longer be damaged. And finally, it must also be considered advantageous that the fundamental possibility exists of installing the dispenser according to the invention without the necessity of providing an electrical power connection.

In the case of a mechanical design of the locking device, no power source at all is needed;

and, otherwise, the necessary electrical power can be provided from built-in batteries.

In the structural design of the locking device providing locking of the roll as well as, in particular, its releasability, there are no basic limitations within the framework of the invention. However, it has proved particularly advantageous to enable the release thereof by means of a coin-operated mechanism. After insertion of a specific amount in coins, the locking of the roll is released, making it possible to rotate this far enough for one item of the rolled product to exit through the dispensing slot in order to be torn off there. At this time, the roll is again locked by the locking device. The term "coin-operated mechanism" is to be broadly interpreted within the framework of the invention. It includes both mechanical and electromechanical, in particular also semi- and fully automated coin-operated mechanisms. With the mechanical types, the coin is first tested after passing into the insertion slot and then drops after a positive result into a pocket or recess in the release device, whereby the release mechanism is activated and the locking lever of the locking mechanism is released to initiate the rotational movement of the roll. With electromechanical coin-operated mechanisms, the coin accepted by the coin tester activates a contact or microswitch and outputs a pulse to the dispensing mechanism (fully automatic operation) or to a relay that closes a circuit to the wall switch to be operated by the customer (semiautomatic function). The release of the locking mechanism occurs by means of the triggering of a pull magnet or by the starting of an electric motor. The great advantage of the use of a coin-operated mechanism consists, on the one hand, in the possibility of financial income that enables at least partially meeting the costs of refilling the housing and, on the other, with electromechanical designs, there are no projecting parts that can be torn out or otherwise destroyed.

Provision is made in another embodiment to release the locking device by means of a timing element. Upon removal of a single sheet, the roll is locked for a specific predefined, but adjustable period of time such that only upon expiration of this interval, the removal of the next single sheet is possible. Here again, it is possible to largely eliminate waste of the product delivered by the dispenser.

And finally, it is also proposed to release the locking device by means of a photoelectric beam and/or a step-on sensor. Installation and connection take place such that upon entering or leaving the area equipped with a dispenser, a control pulse is triggered by which a relay is switched that releases the locking device. Then, it is guaranteed that the next single sheet can be removed only after entry of the next person such that it is ensured that under no circumstances can the dispensing of multiple sheets be accomplished by one person.

The invention is explained in detail in the following with reference to one exemplary embodiment depicted in the drawing.

It depicts a dispenser according to the invention during the dispensing of paper toilet seat covers in which the release of the locking device takes place by means of a coin-operated mechanism and in which the front wall is removed for better visualization of its construction.

A roll 2, on which the products to be dispensed, in this case, paper toilet seat covers, are rolled up, is located inside a housing 1. The roll 2 is mounted such that it is easily and quickly removable and replaceable with a new (full) roll. The individual sheets are still connected to each other, but can be readily separated from each other, for which purpose, in the present case, inward pointing slits have been made at the respective intended separation points 3. The rolled product is inserted in the dispenser depicted such that it arrives at the outside over two externally touching guide rollers 4 and a dispensing slot 5 located in the base of the housing 1. It is thus required that after insertion of a new roll 2, the rolled product be threaded and guided to the outside via the dispensing slot 5.

The essence of the present invention consists in the control portion located in the right hand side of the housing 1, which is activated by a coin-operated mechanism in the exemplary embodiment depicted. Accordingly, this portion constitutes a coin slot 6, into which the corresponding number of coins for release of the product are inserted. A coin tester 7 that tests the money inserted for diameter, thickness, weight, and the height of the minted edge in the conventional manner is connected thereto. The accepted coin moves from there via a coin guide 8 to a coin contact 9, by which a control element connected to a locking device 10 is activated and which, in turn, causes the release of the locking device 10 connected to the axle of a guide roller 4 and preventing rotation, with a battery 12 used as an energy source. By the insertion of the appropriate number of coins, the rotation of a guide roller 4 is released, which, by nipping the product, also sets the second contacting guide roller (not shown) in rotation, and moves the product outward until the single sheet of the toilet seat covers has arrived outside through the dispensing slot 5. For this, it is possible to use sensors (not shown) that detect the corresponding unrolled edge length of the product before leaving the housing 1 and act accordingly on the control element 10.

After activation of the coin contact 9, the coin is forwarded to the coin box 11 for storage and later removal.

The exemplary embodiment depicted is fully automated. Simply by insertion of the required coins, the desired product is released without additional action by the operator being required (except for removal). Already after insertion of the corresponding amount of money, it is possible to remove a single sheet of the hygienically safe seat covers. An additional advantage consists in that by the insertion of the required coins, after a certain time, enough money is, for example, collected to purchase a new replacement roll 2.